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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,893	12/21/2001	Hikaru Okada	SIW-029	3205

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LAHIVE & COCKFIELD, LLP.
28 STATE STREET
BOSTON, MA 02109

EXAMINER	
RIDLEY, BASIA ANNA	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/027,893	OKADA ET AL.	
	Examiner	Art Unit	
	Basia Ridley	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- "control device (for example, step S 112 in the embodiment described below)" has to amended, as it is not clear what is the relationship between a device and a process step (P3/L7, P3/L17-18, P4/L30-31);

- P3/L11-12: "oxygen in the air supplied in excess to the reformer during warm-up is combusted" has to amended, as oxygen is not a combustible gas;

- P3/L16: "A second aspect of the present invention according to the first aspect" has to amended, as it is not clear;

- P3/L25: "A third aspect of the present invention according to the second aspect" has to amended, as it is not clear;

- P3/L31-32: "A fourth aspect of the present invention according to the first through third aspects" has to amended, as it is not clear;

- P4/L5: "A fifth aspect of the present invention according to the fourth aspect" has to amended, as it is not clear;

- P4/L9-10: "A sixth and seventh aspect of the present invention respectively according to the fourth and fifth aspects" has to amended, as it is not clear;

- P5/L3-4: "are sufficiently combusted (...), along with the oxygen" has to amended, as oxygen is not a combustible gas;

- "F/B control" should be amended to --F/B (feedback) control-- for clarification (P5/L25 and P5/L28);

- P6/L5-7: include description of Fig. 11D (see P19/L3-6), as currently only figures 11A to 11C are described.

Claim Objections

2. Claims 1-7 and 9-11 are objected to because of the following informalities:

- in claim 1, "reformer, comprising; and" in lines 7-8 should be replaced with --reformer; and--.

Appropriate correction is required. Applicant is reminded that no new matter shall be added.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2 and 4-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Nomura et al. (US 6,797,418).

Regarding claims 1-2 and 8, Nomura et al. in Fig. 1 discloses fuel gas generating apparatus for a fuel cell comprising:

- a vaporizer (3) that generates a fuel vapor by vaporizing a raw liquid fuel;

- a reformer (4) that generates a reforming gas that includes hydrogen from the raw fuel gas that has been partially oxidized by adding reforming air to the fuel vapor generated by said vaporizer;

- a CO eliminator (6) that generates a fuel gas having carbon monoxide eliminated by adding a CO eliminating air to said reforming gas generated by said reformer; and

- a fuel amount control device (25) that controls the supplied amount of said raw liquid fuel during the warm-up of said reformer so as to become larger than the supplied amount of raw liquid fuel during idle operation after completion of the warm-up (C3/L62-C4/L8).

Additionally the reference discloses that air is being supplied to the reformer and to the CO eliminator (C6/L30-40 and C1/L40-45). While the reference does not explicitly disclose that the amount of air supplied to the reformer and to the CO eliminator is controlled to be larger during warm-up then during idle operation, as it is known that the amount of air supplied to the reformer and CO eliminator is directly correlated to the amount of raw fuel which is supplied to the reformer, a presence of a reforming air amount control device and a CO elimination air amount control device that control the supplied amounts of said reforming air and said CO elimination air during the warm-up of said reformer so as to become larger than the supplied amount of the reforming air and the CO elimination air during the idle operation after completion of the warm-up is inherent in the apparatus of Nomura et al. to the amount of air supplied to the reformer and to the CO eliminator can be increased with increasing flow of raw fuel and decreased with decreasing flow of the raw fuel.

Regarding claims 4-7 and 9-10, Nomura et al. discloses all of the claim limitations as set forth above. Additionally the reference discloses the apparatus wherein:

- the temperature corresponding to the warm-up state of said reformer is detected, and when this detected temperature has become higher than a predetermined temperature the supplied amount of reforming air that is increased by said reforming air amount control device during the warm-up of the reformer is then decreased (C7/L61-C8/L44);
- the control for decreasing the supplied amount of said reforming air is decreased depending on

said detected temperature (C7/L61-C8/L44);

- said detected temperature is at least one among the temperature of the catalyst in said reformer, the temperature of said reforming gas, or the temperature of the case of the reformer (C7/L61-C8/L44);

- said reformer and CO eliminator supply the fuel gas to the fuel cell after it has been determined that the warm-up has completed (C7/L61-C8/L44).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

5. Claims 1, 4-7 and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Kotani et al. (US 6,833,208).

Regarding claims 1, 4-7 and 9-10, Kotani et al. in Fig. 1 discloses fuel gas generating apparatus for a fuel cell comprising:

- a vaporizer (13) that generates a fuel vapor by vaporizing a raw liquid fuel;

- a reformer (3) that generates a reforming gas that includes hydrogen from the raw fuel gas that has been partially oxidized by adding reforming air to the fuel vapor generated by said vaporizer;

- a CO eliminator (4) that generates a fuel gas having carbon monoxide eliminated by adding a CO eliminating air to said reforming gas generated by said reformer; and

- a reforming air amount control device (CU) that controls the supplied amount of said reforming

air during the warm-up of said reformer so as to become larger than the supplied amount of reforming air during the idle operation after completion of the warm-up (C3/L27-C5/L10);

- wherein the temperature corresponding to the warm-up state of said reformer is detected, and when this detected temperature has become higher than a predetermined temperature the supplied amount of reforming air that is increased by said reforming air amount control device during the warm-up of the reformer is then decreased (C3/L27-C5/L10);
- wherein the control for decreasing the supplied amount of said reforming air is decreased depending on said detected temperature (C3/L27-C5/L10);
- wherein said detected temperature is at least one among the temperature of the catalyst in said reformer, the temperature of said reforming gas, or the temperature of the case of the reformer (C3/L27-C5/L10);
- wherein said reformer and CO eliminator supply the fuel gas to the fuel cell after it has been determined that the warm-up has completed (C3/L27-C5/L10).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being obvious over Nomura et al. (US 6,797,418).

Regarding claim 3, Nomura et al. discloses all of the claim limitations as set forth above, but the reference does not explicitly disclose any specific ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel. The specific ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel are not considered to confer patentability to the claims. As the reactor operation efficiency is a variable(s) that can be modified, among others, by adjusting ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel, the precise ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel in the apparatus of Nomura et al. to obtain the desired operation efficiency (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being obvious over Nomura et al. (US 6,797,418) in view of Setzer et al. (USP 4,693,882).

Regarding claim 11, Nomura et al. discloses all of the claim limitations as set forth above, but the reference does not explicitly disclose a reforming catalyst of the reformer is a palladium-type precious metal catalyst. Since no specific reforming catalyst is disclosed by the reference and, since the instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a well known catalyst effective for reforming and autothermal reforming of hydrocarbons (as shown by Setzer et al., abstract) as doing

so would amount to nothing more than use of a known material for its intended use in a known environment to accomplish entirely expected result.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being obvious over Kotani et al. (US 6,833,208).

Regarding claim 8, Kotani et al. in Fig. 1 discloses fuel gas generating apparatus for a fuel cell comprising:

- a vaporizer (13) that generates a fuel vapor by vaporizing a raw liquid fuel;
- a reformer (3) that generates a reforming gas that includes hydrogen from the raw fuel gas that

has been partially oxidized by adding reforming air to the fuel vapor generated by said vaporizer;

- a CO eliminator (4) that generates a fuel gas having carbon monoxide eliminated by adding a CO eliminating air to said reforming gas generated by said reformer.

Additionally, the reference discloses a reforming air amount control device (CU) that controls the supplied amount of said reforming air during the warm-up of said reformer so as to become larger than the supplied amount of reforming air during the idle operation after completion of the warm-up (C3/L27-C5/L10) wherein said air during warm-up is warmed up and used to heat the vaporizer and the reformer (C9/L40-51). While the reference does not explicitly disclose said air is being supplied to the CO eliminator, as CO eliminator catalyst also has to be warmed-up for efficient operation, it would have been obvious to one having ordinary skill in the art at the time of the invention to pass said warmed from reformer to CO eliminator to lower the time required for the CO eliminator catalyst to be brought up to operating temperature.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR

1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being obvious over Kotani et al. (US 6,833,208) in view of Setzer et al. (USP 4,693,882).

Regarding claim 11, Kotani et al. discloses all of the claim limitations as set forth above, but the reference does not explicitly disclose a reforming catalyst of the reformer is a palladium-type precious metal catalyst. Since no specific reforming catalyst is disclosed by the reference and, since the instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a well known catalyst effective for reforming and autothermal reforming of hydrocarbons (as shown by Setzer et al., abstract) as doing so would amount to nothing more than use of a known material for its intended use in a known environment to accomplish entirely expected result.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are

currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,797,418. Although the conflicting claims are not identical, they are not patentably distinct from each other because said claims 1-10 of the instant application recite only the limitations which are recited in claims 1-12 of U.S. Patent No. 6,797,418. While claims 1-12 of U.S. Patent No. 6,797,418 recite that air is being supplied to the reformer and to the CO eliminator (C6/L30-40 and C1/L40-45) said claims does not explicitly recite that the amount of air supplied to the reformer and to the CO eliminator is controlled to be larger during warm-up then during idle operation. Since it is known that the

amount of air supplied to the reformer and CO eliminator is directly correlated to the amount of raw fuel which is supplied to the reformer, a presence of a reforming air amount control device and a CO elimination air amount control device that control the supplied amounts of said reforming air and said CO elimination air during the warm-up of said reformer so as to become larger than the supplied amount of the reforming air and the CO elimination air during the idle operation after completion of the warm-up is inherent in the apparatus recited in claims 1-12 of U.S. Patent No. 6,797,418 so that the amount of air supplied to the reformer and to the CO eliminator can be increased with increasing flow of raw fuel and decreased with decreasing flow of the raw fuel.

Regarding claim 3, claims 1-12 of U.S. Patent No. 6,797,418 recite all of the claim limitations as set forth above, but said claims do not explicitly recite any specific ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel. The specific ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel are not considered to confer patentability to the claims. As the reactor operation efficiency is a variable(s) that can be modified, among others, by adjusting ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel, the precise ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, ratios of the increased supplied amount of reformed air or the increased supplied amount of raw fuel in the apparatus recited in claims 1-12 of U.S. Patent No.

6,797,418 to obtain the desired operation efficiency (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

13. Claim 11 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,797,418 in view of Setzer et al. (USP 4,693,882). Although the conflicting claims are not identical, they are not patentably distinct from each other because said claim 11 of the instant application recites only the limitations which are recited in claims 1-12 of U.S. Patent No. 6,797,418 except for reciting reforming catalyst of the reformer being a palladium-type precious metal catalyst.

Since no specific reforming catalysts are recited claims 1-12 of U.S. Patent No. 6,797,418 and, since the instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a well known catalyst effective for reforming and autothermal reforming of hydrocarbons (as shown by Setzer et al., abstract) as doing so would amount to nothing more than use of a known material for its intended use in a known environment to accomplish entirely expected result.

14. Claims 1 and 4-10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 6,833,208. Although the conflicting claims are not identical, they are not patentably distinct from each other because said claims 1 and 4-10 of the instant application recite only the limitations which are recited in claims 1-10 of U.S. Patent No. 6,833,208.

Regarding claim 8, while claims 1-10 of U.S. Patent No. 6,833,208 recite that reforming air amount control device (CU) controls the supplied amount of said reforming air during the warm-up of said reformer so as to become larger than the supplied amount of reforming air during the idle operation after completion of the warm-up (C3/L27-C5/L10) wherein said air during warm-up is warmed up and used to heat the vaporizer and the reformer (C9/L40-51). While said claims 1-10 of U.S. Patent No. 6,833,208 do not explicitly recite said air is being supplied to the CO eliminator, as CO eliminator catalyst also has to be warmed-up for efficient operation, it would have been obvious to one having ordinary skill in the art at the time of the invention to pass said warmed from reformer to CO eliminator to lower the time required for the CO eliminator catalyst to be brought up to operating temperature.

15. Claim 11 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 6,833,208 in view of Setzer et al. (USP 4,693,882). Although the conflicting claims are not identical, they are not patentably distinct from each other because said claim 11 of the instant application recites only the limitations which are recited in claims 1-10 of U.S. Patent No. 6,833,208 except for reciting reforming catalyst of the reformer being a palladium-type precious metal catalyst.

Since no specific reforming catalysts are recited claims 1-10 of U.S. Patent No. 6,833,208 and, since the instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a well known catalyst effective for reforming and autothermal reforming of hydrocarbons (as shown by Setzer et al., abstract) as doing so would amount to nothing more than use of a known material for its intended use in a known environment to accomplish entirely expected result.

Conclusion

16. In view of the foregoing, none of the claims are allowed.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (571) 272-1453.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Technical Center 1700 General Information Telephone No. is (571) 272-1700. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Questions on access to the Private PAIR system should be directed to the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

Basia Ridley
Examiner
Art Unit 1764

BR
March 20, 2005